



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/581,826	08/13/2007	Anne Neville	K&C-176US	7172
22442	7590	01/19/2011	EXAMINER	
SHERIDAN ROSS PC 1560 BROADWAY SUITE 1200 DENVER, CO 80202				SALZMAN, KOURTNEY R
ART UNIT		PAPER NUMBER		
				1724
MAIL DATE		DELIVERY MODE		
01/19/2011		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/581,826	NEVILLE ET AL.
	Examiner	Art Unit
	KOURTNEY R. SALZMAN	1724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 02 June 2006.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-40 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-40 is/are rejected.
 7) Claim(s) 15 is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1.) Certified copies of the priority documents have been received.
 2.) Certified copies of the priority documents have been received in Application No. _____.
 3.) Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ . |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>8/15/2007</u> | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Summary

1. This is the first action on the merits for application 10/581,826 the 371 application of international application PCT/GB04/05060 also claiming priority to UK document 0327863.7.
2. Claims 1-40 are currently pending and have been fully considered.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 1-40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
 - a. Claims 1-40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The use of the terms "electrochemical cell", "electrochemical sensor" and "sensor" are indefinite as they are not consistent throughout the application's claims. The preamble of claim 1 recites "an electrochemical sensor" yet details the sensor to comprise "an electrochemical cell having a sensor". In terms which are consistent with one of ordinary skill in the art, this definition is not permissible. Moreover, the applicant needs to be clear as to what they intend their claimed invention to read on. The current arrangement of claim 1 would just give patentable weight to the sensor

itself, not the other corresponding pieces which are stated to be present in the electrochemical cell as the preamble is to just the sensor itself, like the electrical output. The use of sensor in the preamble, when the claim states the sensor is also part of a cell is unclear and in the process causes confusion as to which sensor is being referred to. If the intent is for two sensors to be present, please correct the wording of the claim accordingly. Furthermore, as the term cell or electrochemical cell is further defined through the remainder of the claims, it is then unclear what the applicant actually defines the cell to include. Claim 7 and its dependents become particularly confusing regarding what the intended sensor is, as it requires characteristics of its physicality to be understood. These claims are also rejected on the grounds that the wording of "means" has been inserted throughout the claims arbitrarily. If the applicant would like to invoke the interpretation of 35 USC 112 6th paragraph, the wording is not accurate in all cases. These cases will be pointed out below as lacking antecedent basis.

b. Claims 1 and 10-12 and 15-21 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

i. The claims do not make clear the relationship between the "fluid" defined in claim 1 and the "test fluid" introduced in claims 10 and 15. If a new "test fluid" is placed in the system and the first "fluid" is removed, then please make this clear. If the "test fluid" is the "fluid" of claim 1, then please make that clear. If it is a different arrangement, please make that

clear. With the addition of the electrolyte the same clarifications should be make clear.

ii. Claim 15 also details a "flow control means". Claim 1 already requires a flow control means. If the intention is for another flow control means to be present, please make this clear.

c. Claims 20, 21, 39 and 40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

iii. These claims have two primary problems. Firstly, the "saturation ratio" is not defined in the specification and it is not a well known term in the art making this an indefinite calculation. Secondly, the scope of the material which the applicant views as their invention is in question. Claims 20 and 39 disclose a ratio of less than 1, while claims 21 and 40 disclose nearly the entire remainder of the possible ratio solutions which exist.

d. Claims 22-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

iv. The claims do not make clear the relationship between the "fluid" defined in line 3 of claim 22 and the "test fluid" introduced in the preamble and again referred to in the final line of claim 22. If a new "test fluid" is placed in the system and the first "fluid" is removed, then please make this

clear. If the "test fluid" is the "fluid" of line 3, then please make that clear.

If it is a different arrangement, please make that clear.

e. Claim 23 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

v. Claim 23 refers to claim 20. Claim 20 is a sensor claim while claim 23 is a method claim. Please correct this. If this is the intended dependency, please correct language and preamble to reflect this.

f. Claim 1 recites the limitation "sensor means" in line 4. There is insufficient antecedent basis for this limitation in the claim.

vi. The sensor had been previously defined (two times, which also results in a separate indefinite rejection) but not sensor means. Furthermore, the use of the word "means" has a specific definition according to 35 USC 112 6th paragraph which will not be invoked with this claim language as it is not in the appropriate form.

g. Claim 1 recites the limitations "control" and "measurement" in line 8.

There is insufficient antecedent basis for this limitation in the claim.

vii. There is no consistency in the terminology of use in this claim regarding control and measurement. Please correct the wording of the claim to clearly define what is being controlled and measured throughout the entirety of the claim.

- h. Claim 4 recites the limitation "fluid control means" in line 2. There is insufficient antecedent basis for this limitation in the claim.
 - viii. If the intention is to refer to the "fluid flow control means", please correct the claim language to reflect that. If not, please define this new term in a previous claim or in this one.
- i. Claim 8 recites the limitation "fluid control means" in line 2. There is insufficient antecedent basis for this limitation in the claim.
 - ix. If the intention is to refer to the "fluid flow control means", please correct the claim language to reflect that. If not, please define this new term in a previous claim or in this one.
- j. Claim 22 recites the limitation "fluid control means" in line 5. There is insufficient antecedent basis for this limitation in the claim.
 - x. If the intention is to refer to the "fluid flow control means", please correct the claim language to reflect that. If not, please define this new term in this claim.
- k. Claim 26 recites the limitation "fluid control means" in line 2. There is insufficient antecedent basis for this limitation in the claim.
 - xi. If the intention is to refer to the "fluid flow control means", please correct the claim language to reflect that. If not, please define this new term in this claim.

Claim Objections

5. Claim 15 is objected to because of the following informalities: The claim in line 2 currently reads “storing a electrolyte”. Please correct this to “an electrolyte” Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-8, 10 and 13-21 are rejected under 35 U.S.C. 102(b) as being anticipated by BOUET et al (BOUET, V. et al., Application of Electrochemical Impedance Analysis To the Characterization of Mass Transfer In a Submerged Impinging Jet Cell, Journal of Electroanalytical Chemistry, July 1992, pages 325-331, vol. 340, USA).

Regarding claim 1, BOUET et al teaches the an electrochemical cell as shown in figure 1 comprising a sensor (as shown in the figure) and an electrical output (an inherent addition, as without an output, reporting the results of the apparatus testing would be impossible, moreover, means are also stated in the second paragraph of the Experimental section). As defined in the Experimental paragraph of page 327, a precision pump and or a nozzle (a conduit) was utilized providing fluid flow control means. In the cell the pump and nozzle work together to control the velocity as discussed in the first paragraph of the Experimental

section and the first paragraph of the Results section. This velocity is used to calculate a Reynolds number as shown in the figure 2 and discussed in the Introduction and Results sections. The calculations performed with the cell and the use of the Reynolds number in the cell to determine a quantifiable measure of buildup of scale is not a characteristic of the physical apparatus which is being claimed in claim 1. Essentially, the correlation between the Reynolds number calculated within BOUET et al with a scale measurement is not given patentable weight as currently claimed as this is not a physical piece of the structure of the cells.

Regarding claim 2, the sensor surface is shown in figure 1 of BOUET et al. Regarding that which the cell is to measure, this is not a tangible piece of the structure of the cell. Since this is an apparatus claim and there is no corresponding structure which allows the sensor this operation outside of that required of claim 1, therefore, this aspect of the claim is given no patentable weight.

Regarding claim 3, the quantities which the sensor of the instant application is to detect does not provide a structural piece to the apparatus. Since this is an apparatus claim and there is no corresponding structure which allows the sensor this operation outside of that required of claim 1, therefore, this aspect of the claim is given no patentable weight.

Regarding claim 4, as discussed in claim 1, section Experimental of BOUET et al details the use of a pump and nozzle, which functions as a conduit.

Regarding claim 5, the second paragraph of the Experimental section of BOUET et al further details the analysis of the system electrically through the use of a frequency response analyzer and potentiostat, providing the ability to perform the limitations of the instant application.

Regarding claim 6, the functionality of the sensor (i.e. its response to limiting current) is not a tangible portion of the structure and is not given patentable weight in an apparatus claim. Moreover, BOUET et al teaches this calculation in the first paragraph of the Results section on page 327.

Regarding claim 7, figure 1 of BOUET et al shows the values of d and H to be present. These values are also discussed in the third paragraph of the Introduction section. Moreover, the radius of the sensor is discussed in the first paragraph of the Experimental section.

Regarding claim 8, the laminar flow of the fluid is discussed in the first paragraph of the Results section. Moreover, the components defined to be used in the calculation according to the instant claim are nearly all present in the Reynolds

number itself. Furthermore, the calculation of the laminar flow is not part of the physical structure of the sensor itself and not given patentable weight in an apparatus claim. Moreover, the manipulation of the numbers of the claim are shown to be set in figure 2, with calculations within the laminar flow region.

Regarding claim 10, figure 1 of BOUET et al shows an inlet port, which would reasonably provide sampling means.

Regarding claim 13, the first paragraph of the Experimental section of BOUET et al details the use of multiple electrodes for investigating local flow rates.

Regarding claim 14, the working electrode and reference electrodes are explicitly shown to be of use in figure 1 of BOUET et al. The platinum grid also shown in this figure functions as the counter electrode.

Regarding claim 15, the electrolyte inlet functions as a reservoir at the top portion becoming a conduit the electrolyte progresses the distance of the nozzle to the tip as shown in figure 1 of BOUET et al. The calculation of the Reynolds number is detailed in the Introduction and Results sections. However, the functionality of the sensor for the calculation of the Reynolds number and the quantity of scale is not a tangible structural piece of the apparatus and is therefore, not given patentable weight in an apparatus claim.

Regarding claim 16, the electrolyte of the instant application is not part of the structure of the cell itself, but rather an addition to the cell for testing purposes, making the characteristics of the electrolyte not relevant for patentability of the apparatus claim. Moreover, since the electrolyte will flow through the nozzle, it is the interpretation of the examiner for the electrolyte to need to behave like a solution for operation of the sensor.

Regarding claims 17-21, the electrolyte of the instant application is not part of the structure of the cell itself, but rather an addition to the cell for testing purposes, making the characteristics of the electrolyte not relevant for patentability of the apparatus claim.

8. Claims 9 and 11 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over BOUET et al (BOUET, V. et al., Application of Electrochemical Impedance Analysis To the Characterization of Mass Transfer In a Submerged Impinging Jet Cell, Journal of Electroanalytical Chemistry, July 1992, pages 325-331, vol. 340, USA).

Regarding claim 9, figure 3 shows of BOUET et al states the H/d ratio to be 1 and figure 2 of BOUET et al shows the r/d ratio to be .37. Furthermore, the manipulation of these numbers is contemplated, making all the reasonable combinations obvious.

Regarding claim 11, since the inlet of figure 1 of BOUET et al provides a small diameter relative to a clearly large sample pool or even the diameter of the cell itself; it would obviously provide only a small isolated sample. Inherently, a device of this size would feature a small port or isolation area, as the cell would only inherently be capable of sensing a small sample at a time.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over BOUET et al (BOUET, V. et al., Application of Electrochemical Impedance Analysis To the Characterization of Mass Transfer In a Submerged Impinging Jet Cell, Journal of Electroanalytical Chemistry, July 1992, pages 325-331, vol. 340, USA).

Regarding claim 12, BOUET et al details the use of a precision pump in the first paragraph of the Experimental to control the addition of electrolyte to the nozzle.

A valve is an extremely well known flow control device. One of ordinary skill in the art would have found it obvious to substitute the pump flow control for valve flow control as they are both well known methods of flow control and the substitution would have caused the predictable result of continued flow control.

13. Claims 22-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over BOUET et al (BOUET, V. et al., Application of Electrochemical Impedance Analysis To the Characterization of Mass Transfer In a Submerged Impinging Jet Cell, Journal of Electroanalytical Chemistry, July 1992, pages 325-331, vol. 340, USA), in view of GABRIELLI et al (GABRIELLI, C. et al., Quartz Crystal Microbalance Investigation of Electrochemical Calcium Carbonate Scaling, Electrochemical Society, July 1998, pages 2386-2396, vol. 145, no. 7, Manchester, New Hampshire, USA)

Regarding claim 22, BOUET et al teaches the an electrochemical cell as shown in figure 1 comprising a nozzle functioning to control the flow a test solution onto

a sensor electrode. As defined in the Experimental paragraph of page 327, a precision pump and or a nozzle (a conduit) was utilized providing fluid flow control means. In the cell the pump and nozzle work together to control the velocity as discussed in the first paragraph of the Experimental section and the first paragraph of the Results section. This velocity is used to calculate a Reynolds number as shown in the figure 2 and discussed in the Introduction and Results sections.

While BOUET et al explicitly discusses the relationship between the Reynolds number and impedance, BOUET et al is silent regarding the explicit calculation of scale buildup.

GABRIELLI et al discloses the correlation between Reynolds number and scale buildup in a QCM in the Results section. Furthermore, GABRIELLI et al is explicit in showing an electronic output in addition to a similar set up as BOUET et al in figure 1.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to utilize the correlation of Reynolds number and scale building as in GABRIELLI et al, in the method and device of BOUET et al because as GABRIELLI et al shows, this is a proven conclusion. Furthermore, since the same apparatus is being used to perform the same method steps, the same

functionality of GABRIELLI et al would inherently be performed by BOUET et al already.

Regarding claims 23 and 24, BOUET et al discusses the limiting current response in relationship to the Reynolds number in the first paragraph of the Results section.

Regarding claim 25, figure 1 of BOUET et al shows the values of d and H to be present. These values are also discussed in the third paragraph of the Introduction section. Moreover, the radius of the sensor is discussed in the first paragraph of the Experimental section.

Regarding claim 26, the laminar flow of the fluid is discussed in the first paragraph of the Results section. Moreover, the components defined to be used in the calculation according to the instant claim are nearly all present in the Reynolds number itself. Moreover, the manipulation of the numbers of the claim are shown to be set in figure 2, with calculations within the laminar flow region.

Regarding claim 27, figure 3 shows of BOUET et al states the H/d ratio to be 1 and figure 2 of BOUET et al shows the r/d ratio to be .37. Furthermore, the manipulation of these numbers is contemplated, making all the reasonable combinations obvious.

Regarding claim 28, since the inlet of figure 1 of BOUET et al provides a small diameter relative to a clearly large sample pool or even the diameter of the cell itself; it would obviously provide only a small isolated sample. Inherently, a device of this size would feature a small port or isolation area, as the cell would only inherently be capable of sensing a small sample at a time. GABRIELLI et al also explicitly shows the use of a reservoir or isolation means in figure 1.

Regarding claims 29-30, GABRIELLI et al and BOUET et al detail the use of a precision pump in figure 1 and the first paragraph of the Experimental respectively to control the addition of electrolyte to the nozzle. A valve is an extremely well known flow control device. One of ordinary skill in the art would have found it obvious to substitute the pump flow control for valve flow control as they are both well known methods of flow control and the substitution would have caused the predictable result of continued flow control. The addition of other valves for this same purpose of flow control is also obvious as would be applicable on the return stream. Furthermore, the removable attachability of the isolation means or bulk fluid location is shown in figure 1 of GABRIELLI et al as it is clear this tank is intended to be used with different fluids. This structure would provide this capability.

Regarding claim 31, BOUET et al teaches the an electrochemical cell as shown in figure 1 comprising a nozzle functioning to control the flow a test solution onto a sensor electrode. As defined in the Experimental paragraph of page 327, a precision pump and or a nozzle (a conduit) was utilized providing fluid flow control means. In the cell the pump and nozzle work together to control the velocity as discussed in the first paragraph of the Experimental section and the first paragraph of the Results section. This velocity is used to calculate a Reynolds number as shown in the figure 2 and discussed in the Introduction and Results sections.

While BOUET et al explicitly discusses the relationship between the Reynolds number and impedance, BOUET et al is silent regarding the explicit calculation of scale buildup.

GABRIELLI et al discloses the correlation between Reynolds number and scale buildup in a QCM in the Results section. Furthermore, GABRIELLI et al is explicit in showing an electronic output in addition to a similar set up as BOUET et al in figure 1.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to utilize the correlation of Reynolds number and scale building as in GABRIELLI et al, in the method and device of BOUET et al because as

GABRIELLI et al shows, this is a proven conclusion. Furthermore, since the same apparatus is being used to perform the same method steps, the same functionality of GABRIELLI et al would inherently be performed by BOUET et al already. Moreover, to be clear, BOUET et al teaches the measurement of the Reynolds number etc in response to the use of an electrolyte while GABRIELLI et al teaches the measurement of the Reynolds number etc with tap water. With these disclosures, it would have been more than obvious to utilize any number of runs with any number of solutions of many different kinds because it is shown that the test can be applied in this manner in the experiments of BOUET et al and GABRIELLI et al.

Regarding claim 32, the control of the velocity and in turn the Reynolds number of the fluid is discussed in the Results sections of both BOUET et al and GABRIELLI et al.

Regarding claim 33, the replication of the inlet as shown in figure 1 of BOUET et al and the tank of GABRIELLI et al would have been obvious. It is known to test multiple fluids as shown by these two references and it is known to utilize one of the required flow means to do so in both these reference. Therefore, it would have been obvious to duplication the solution inlets in order to accommodate a second fluid. The control of the velocity and in turn the Reynolds number of the

fluid is discussed in the Results sections of both BOUET et al and GABRIELLI et al.

Regarding claim 34, the figures of BOUET et al and GABRIELLI et al both show the measurement of the system continually and during use. Most notably for this purpose, figure 2 of GABRIELLI et al and figures 2-5 of BOUET et al.

Regarding claim 35, BOUET et al discusses the limiting current response in relationship to the Reynolds number in the first paragraph of the Results section.

Regarding claim 36, figure 1 of BOUET et al shows the values of d and H to be present. These values are also discussed in the third paragraph of the Introduction section. Moreover, the radius of the sensor is discussed in the first paragraph of the Experimental section.

Regarding claim 37, the laminar flow of the fluid is discussed in the first paragraph of the Results section of BOUET et al. Moreover, the components defined to be used in the calculation according to the instant claim are nearly all present in the Reynolds number itself. Moreover, the manipulation of the numbers of the claim are shown to be set in figure 2, with calculations within the laminar flow region.

Regarding claim 38, figure 3 shows of BOUET et al states the H/d ratio to be 1 and figure 2 of BOUET et al shows the r/d ratio to be .37. Furthermore, the manipulation of these numbers is contemplated, making all the reasonable combinations obvious.

Regarding claims 39 and 40, BOUET et al teaches the measurement of the Reynolds number etc in response to the use of an electrolyte while GABRIELLI et al teaches the measurement of the Reynolds number etc with tap water. With these disclosures, it would have been more than obvious to utilize any number of runs with any number of solutions of any saturation ratio because it is shown that the test can be applied in this manner in the experiments of BOUET et al and GABRIELLI et al.

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KOURTNEY R. SALZMAN whose telephone number is (571)270-5117. The examiner can normally be reached on Monday to Thursday 6:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nam X Nguyen/
Supervisory Patent Examiner, Art Unit 1753

krs
1/14/2011